

**DECISION DOCUMENT**  
**Solid Waste Management Unit J-14**  
**Building 103-6 Trench**  
**Hawthorne Army Depot**  
**Hawthorne, Nevada**



**October 2002**



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
HAWTHORNE ARMY DEPOT  
1 SOUTH MAINE AVENUE  
HAWTHORNE, NV 89415-9404

Special Staff - Environmental

17 OCT 2002

RECEIVED

OCT 18 2002

ENVIRONMENTAL PROTECTION

Mr. Eric Noack  
Division of Environmental Protection  
Bureau of Federal Facilities  
333 West Nye Lane  
Carson City, Nevada 89706-0851

Dear Mr. Noack:

Reference Decision Document, SWMU J14, Building 103-6 Trench, Hawthorne Army Depot, Hawthorne, Nevada, October 2002 (enclosure).

Referenced decision document is provided for your information and action. Request after your review and approval, a copy of the signed signature page be returned to HWAD.

Point of contact is Mr. Herman Millsap, SOSHW-ENV, (775) 945-7317.

Sincerely,

Florentino F. Cardenas  
Civilian Executive Assistant

Enclosure

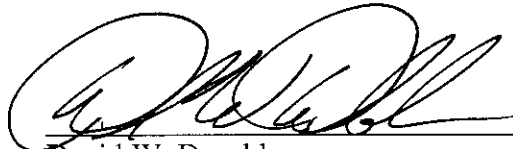
## Decision Document SWMU J14

October 2002

The selected remedy is protective of human health and the environment. It has been shown that a complete pathway to human health and the environment does not exist, and there is no potential for an exposure pathway to be completed in the future.

U.S. Army

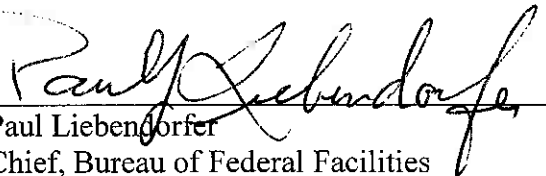
04 OCT 2002



David W. Dornblaser  
Lieutenant Colonel, U.S. Army  
Commanding

State of Nevada

19 Nov. 2002



Paul Liebendorfer  
Chief, Bureau of Federal Facilities

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**October 2002**

**Decision Document  
SWMU J14  
Building 103-6 Trench  
Hawthorne Army Depot  
Hawthorne, Nevada**

## **1.0 Introduction**

This decision document describes the rationale for the proposed closure of SWMU J14, Building 103-6 Trench, at the Hawthorne Army Depot (HWAD), Hawthorne, Nevada. The U.S. Army Corps of Engineers, Sacramento District (USACE) and HWAD prepared this document for the Nevada Division of Environmental Protection (NDEP).

Tetra Tech, Inc. (Tt), was tasked by the USACE, to perform remedial investigations and ground water monitoring at HWAD. These tasks were conducted from 1993 through 1997, primarily at solid waste management units (SWMUs) designated by the Army and the Nevada Division of Environmental Protection (NDEP). The purpose of these studies was to determine the extent and degree of environmental impacts, if any, associated with activities performed at each SWMU. The primary goal was to assess the environmental impacts, report the findings, present conclusions, and recommend any remediation, if necessary. The NDEP is the lead regulatory agency for environmental issues at HWAD.

With guidance from the NDEP, basewide proposed closure goals (PCGs) for soil were established as acceptable levels so that SWMU closure could be recommended and to assist in directing the investigative efforts toward those SWMUs where the target analytes were of greatest concern. These PCGs were used as action levels throughout this investigation and are used for comparison with the detected analytes in this report (Appendix A). Clean up and excavation goals established, with guidance from the NDEP, and were used to guide the remediation effort (Appendix A).

## **2.0 Site History**

SWMU J14 is in HWAD's north magazine area, inside the Building 103 Group (Figure 1-1). SWMU J14 is an unlined trench approximately 450 feet northwest of the boiler facility at Building 103-17 (Figure 1-2). The trench at this SWMU extends approximately 650 feet to the west. The channel of the trench is approximately 10 to 20 feet wide and is approximately three to five feet deep; well-established vegetation covers the floor of the trench. There is a small pit at the head (east end) of the trench and a soil pile southwest of the pit. A dirt road runs along the perimeter of the trench. An underground drain line was traced from Building 103-17 to a settling tank approximately 100 feet south of the trench. The outlet to the settling tank was determined to be an underground drain line that was traced northwest toward the trench, but turned and ran west, parallel to the dirt road south of the trench and does not intercept the trench. Yellow-stained soil and dark red flaky material with black sludge was noted on the north rim of the trench during Tt's 1993 site walk and during the survey performed by Resource Applications, Inc. (RAI) (RAI 1992). Appendix A contains photo documentation of the SWMU from Tt's 1993 inspection.

The USACE, HWAD and the NDEP agreed to define the boundaries of each SWMU using annotated monuments and survey pins. As part of Tt's 1997 field investigations, a survey monument was constructed and surveyed at SWMU J14. A brass survey pin on the monument designated the monument number HWAAP-26-1996 and the SWMU number J14. Two corner pins were set and surveyed to define the rectangular SWMU boundary, with the monument at the northwest corner. The location of these corner markers and the SWMU boundary are shown on Figure 1-2. Survey data for SWMU J14 is presented in Appendix B

During Tt's 1997 basewide groundwater monitoring at HWAD (Tt 1997a, 1997b), the depth to groundwater was measured at approximately 80 feet below ground surface (bgs) at wells IRPMW24 and IRPMW25. These wells are approximately 750 feet cross gradient to the north of the trench; therefore, the groundwater beneath SWMU J14 is expected to be at a depth of approximately 80 feet bgs.

### **3.0 Site Conditions**

Based on the stained soil observed in the trench at SWMU J14 and on the potential disposal of metals, explosives, and solvents into this trench, the target analytes are known to be metals, explosives, volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs). An underground drain line with a settling tank was traced from building 103-17 and apparently was used to dispose of wastewater from the boiler facility at this building. This drain line did not intercept the trench at SWMU J14, and the release of wastewater from building 103-17 appeared to drain to an open area south of the trench.

### **4.0 Investigations**

Based on the SWMU J14 site background, Tt collected sediment, surface soil, and subsurface soil samples during its 1994 and 1997 remedial investigations to better define and characterize the extent of any contamination. During the 1994 remedial investigation, Tt performed an AGPR survey along the length of the trench at SWMU J14 to locate potential buried debris at the SWMU. Airborne Environmental Surveys of Reno, Nevada performed this AGPR survey. The results of this survey found disturbed soil areas along the sides of the trench, likely from the trench or road construction, but did not identify any buried debris within the trench.

### **5.0 Investigation Results**

During Tt's sampling activities at SWMU J14, an isolated area of stained soil was observed on the north rim of the trench. This staining appeared to be from the release on the north rim of the trench. This staining appeared to be from the release of the explosives picric acid and TNT. Soils encountered during Tt's investigation included poorly graded sand and silt to a depth of 30 feet bgs, with some intermittent layers of gravel.

Table 4-1 (Appendix C) summarizes the detected analytical results of the sediment samples collected during Tt's remedial investigation of SWMU J14. The sediment sample J14-SD01-1-S and its split duplicate samples, which were collected to characterize the wastewater from

building 103-17, contained arsenic (24 mg/kg and 27 mg/kg), barium (210 mg/kg and 230 mg/kg), cadmium (660 mg/kg and 960 mg/kg), total chromium (28 mg/kg and 32 mg/kg), lead (690 mg/kg and 820 mg/kg), and mercury (1.6 mg/kg and 2.1 mg/kg). Due to split duplication the average of two sampling events for cadmium was 810 mg/kg and for lead 755 mg/kg. As these levels are borderline for HWAD PRG it was agreed by HWAD and NDEP that filling of the sump with soil would eliminate environmental and human health risk from this site. Selenium and silver were not detected in the sediment sample collected at SWMU J14.

The explosive 1,3,5-trinitrobenzene (TNB) was detected at a concentration of 81 mg/kg by the BCA field laboratory; however, the split duplicate sample sent for confirmation analyses by the Datachem laboratory reported TNB at only 0.31 mg/kg. The TNT concentration in this sediment sample was reported as <100 mg/kg by the BCA field laboratory; however, the split duplicate sample analyzed by Datachem reported TNT at 4 mg/kg. Because the Datachem laboratory used the standard USEPA method 8330 analysis for explosives rather than the modified 8090 method used by the BCA field laboratory, and because the Datachem analyses were conducted in a more stable environment than the BCA field laboratory, the Datachem results for TNB and TNT are likely more representative of the sample. Octahydro-1,2,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) was detected at a concentration of 1.1 mg/kg in the sediment sample by the BCA field laboratory but was not analyzed for in the split duplicate sample by the Datachem laboratory.

Two VOCs, methylene chloride and trichlorofluoromethane, were detected in the sediment sample at concentrations of 0.019 mg/kg and 0.0029 mg/kg, respectively. No other target analytes were detected in the sediment sample.

## **6.0 Remediation**

Based on the results of the sediment samples from the settling tank at SWMU J14, the sediment in the tank contains elevated concentrations of metals and should be remediated to reduce the potential release of these metals to the environment. This remediation either may be to remove and dispose of the sediment or to encapsulate the sediment in situ by fixation with cement.

Concentrations of metals and SVOCs that were found in the surface soil samples at SWMU J14 were less than the PCG action levels. Explosives and VOCs were not detected in any of the surface or subsurface soil samples collected at this SWMU; therefore, no remediation of the surface or subsurface soil samples is necessary for any of the target analytes.

Although this investigation was directed toward sampling at locations where the target analytes would likely accumulate, it is possible that concentrations of these analytes other than what was detected by this investigation may be present in the soils at this SWMU. To reduce the potential surface exposure of any target analytes in the trench and to reduce the potential leaching of these target analytes to the groundwater, the trench should be backfilled to grade.

A base wide groundwater-monitoring program has been initiated at HWAD. Although the groundwater has not been affected by activities at SWMU J14, analyses for the target analytes from this SWMU have been included in the groundwater samples collected in this vicinity.



## **7.0 Remediation Results**

With the concurrence of the NDEP, the top of the sump was collapsed into the sump and filled with 8' of clean soil. The trench was backfilled with remediated soil with a one-foot cover of native soil to grade. No more remediation is required at SWMU J14.

## **8.0 Public Involvement**

It is the U.S. Department of Defense and Army policy to involve the local community throughout the investigation process at an installation. To initiate this involvement, HWAD has established and maintains a repository library at the local public library. This repository includes final copies of all past studies and other documents regarding environmental issues at HWAD. As future environmental documents are made available to HWAD the repository shall be updated.

HWAD has solicited community participation in establishment of a restoration advisory board (RAB). To date there has been insufficient response and HWAD has not formed a RAB. HWAD has held open houses to inform the public of ongoing environmental issues. HWAD continues to solicit community involvement, and will establish a RAB should sufficient community interest be obtained.

## **9.0 Conclusions and Recommendations**

The concrete sump has been collapsed and filled with soil to eliminate any exposure to human health and the environment and the open trench backfilled with remediated soil with a one-foot cover of native soil. We recommend HWAAP-J14 for closure, with the restrictions that the site remain for industrial use, and that the site be documented on the HWAD master plan.

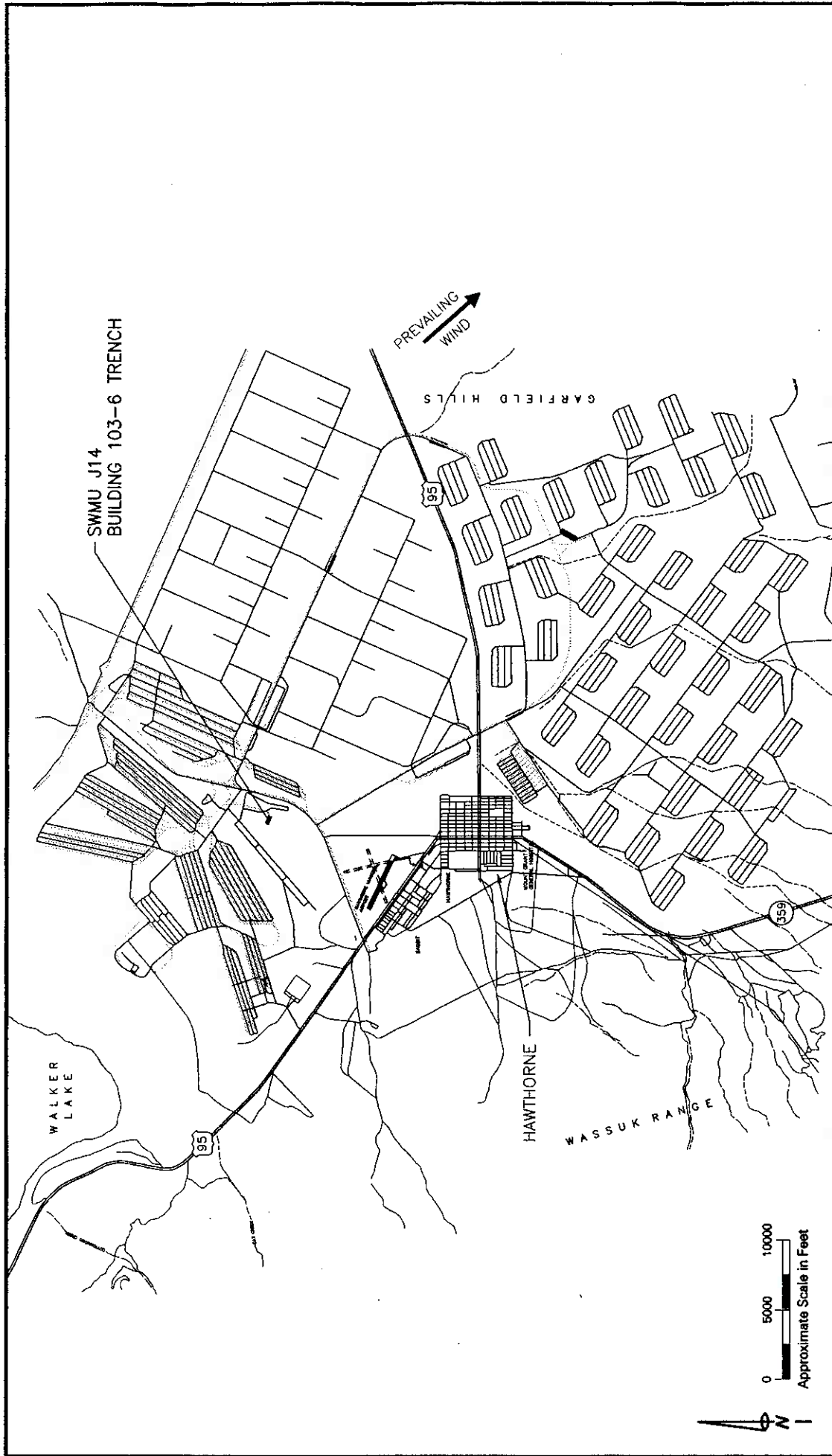
## **10. References**

- Millsap, Herman. 1997. Hawthorne Army Depot. Personal communication via telephone with Richard Brunner of Tetra Tech. July 17, 1997.
- RAI. 1992. Site Screening Inspection (SSI) for the Hawthorne Army Ammunition Plant, Hawthorne, Nevada. Prepared for the US Army Corps of Engineers Toxic and Hazardous Materials Agency by Resource Applications, Inc., Falls Church, Virginia, December 1992.
- Tetra Tech. 1994a. Hawthorne Army Ammunition Plant – Group B Remedial Investigation: Final Site Safety and Health Plan.
- \_\_\_\_\_. 1994b. Hawthorne Army Ammunition Plant – Group B Remedial Investigation: Final Work Plan. 2 volumes.



- \_\_\_\_\_. 1994c. Hawthorne Army Ammunition Plant – Group B Remedial Investigation: Final Chemical Data Acquisition Plan.
- \_\_\_\_\_. 1997a. Final Quarterly Ground Water Monitoring Report, First Quarter 1997, Hawthorne Army Depot, Hawthorne, Nevada. September 1997.
- \_\_\_\_\_. 1997b. Quarterly Ground Water Monitoring Report, Second Quarter 1997, Hawthorne Army Depot, Hawthorne, Nevada. July 1997.
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- \_\_\_\_\_. 1997d. Final Data Package with recommendations for future action, Group B solid waste management units, Hawthorne Army Depot, Hawthorne, Nevada, Volumes 1, 2a and 2b. January 1997.
- \_\_\_\_\_. 1997e. Final Sampling and Analysis Plan, Remedial Investigations, Groups A and B Solid Waste Management Units, Hawthorne Army Depot, Hawthorne, Nevada. February 1997.
- \_\_\_\_\_. 1997f. Final Technical Memorandum Background Sampling at the Hawthorne Army Depot, Hawthorne, Nevada. March 1997.
- USACE. 1993. Installation Action Plan for Hawthorne Army Ammunition Plant (HWAAP), prepared by S. Hong.
- \_\_\_\_\_. 1995. Risk Assessment Handbook: Volume I Human Health Assessment (EM 200-1-4). USACE. June 1995.
- USEPA. 1989. Risk Assessment Guidance for Superfund. Volume I Human Health Evaluation Manual (Part A). December 1989.
- \_\_\_\_\_. 1996. Region IX Preliminary Remediation Goals. USEPA Region IX. August 1996.

## FIGURES



SOURCE: TETRA TECH FINAL DATA PACKAGE, 1996 (REV. 1997)

**Site Location Map**  
**SWMU J14**  
**Building 103-6 Trench**  
 Hawthorne Army Depot  
 Hawthorne, Nevada  
**Figure 1-1**



**Site Map**  
**SWMU J14**  
**Building 103-16 Trench**  
 Hawthorne Army Depot  
 Hawthorne, Nevada  
**Figure 1-2**

**Legend:**

- Boundary Corner Pin
- Drain Line
- ++++ Railroad
- △ SWMU Monument



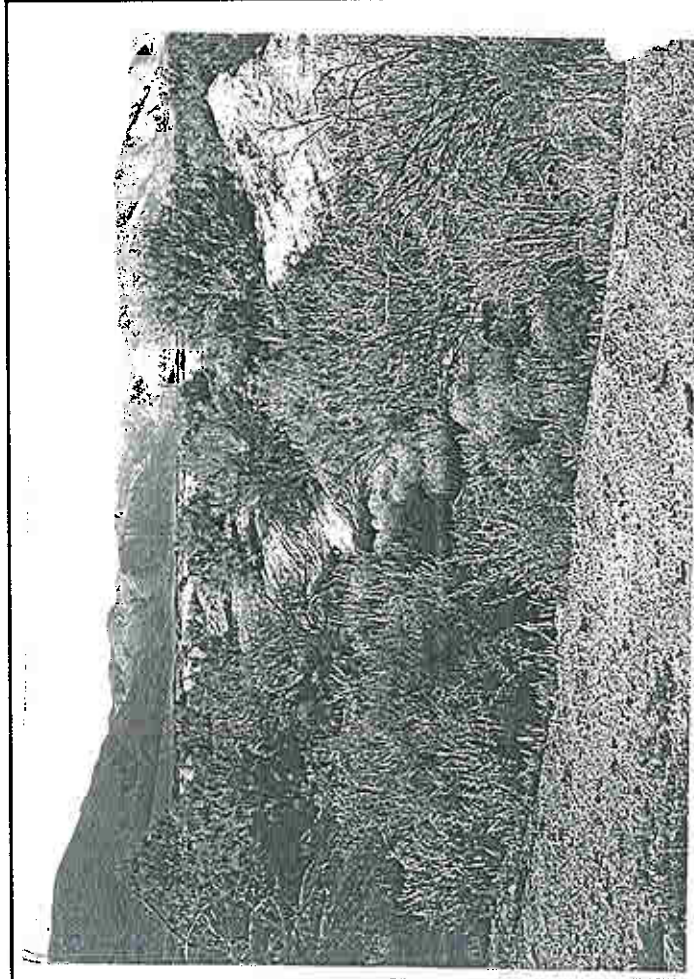
APPENDIX A

SWMU PHOTO DOCUMENTATION





J-14, View to east, up trench, with Bldg 103-6 in center background, Bldg  
103-39 to right. #R2-P6, 11/2/93



J-14, View to northwest, down trench from head of trench. #R2-P4,  
11/2/93



J-14, View to north showing soil pile on north rim at head of trench,  
with unidentified dark waste materials. #R2-P5, 11/2/93



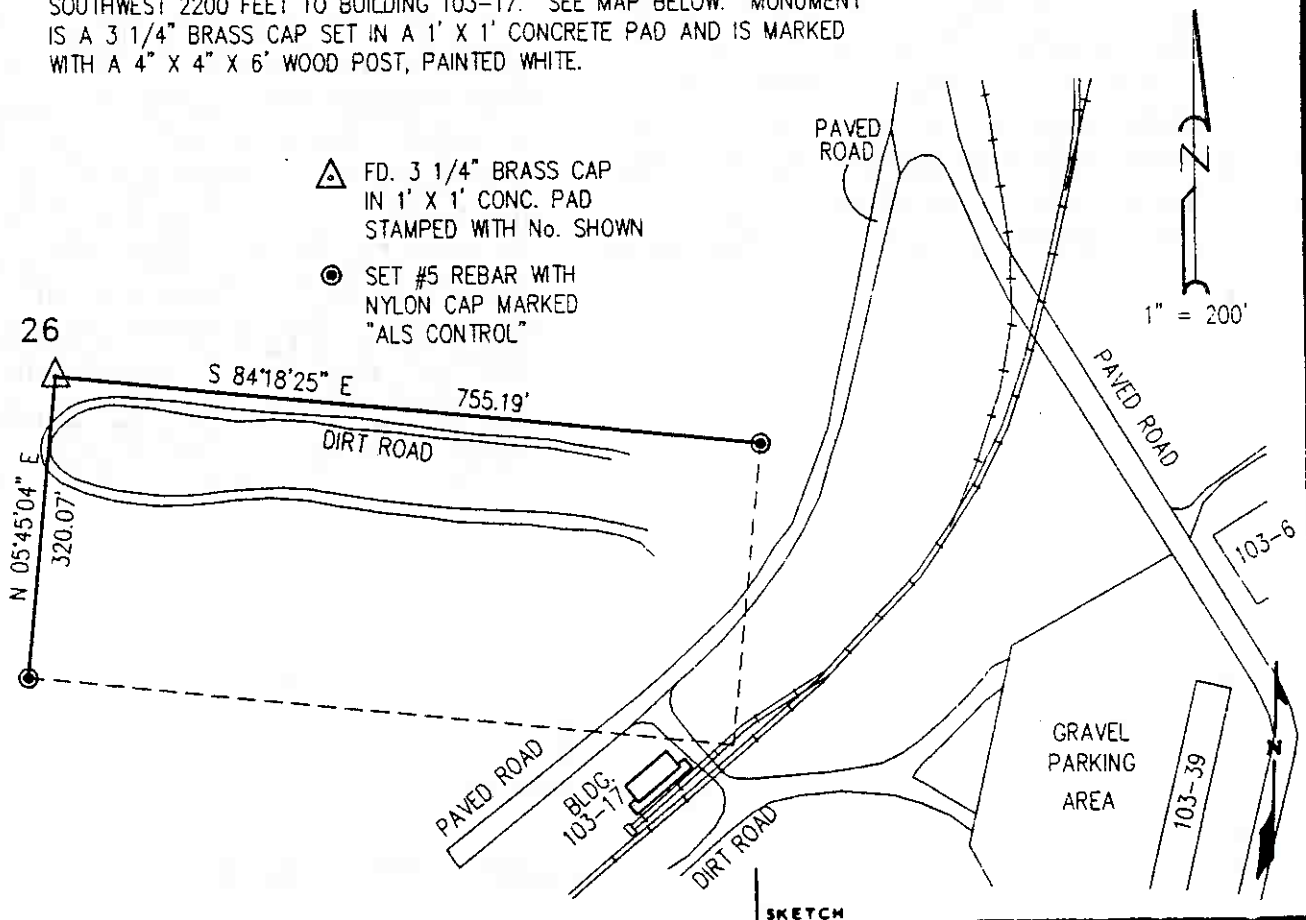
APPENDIX B  
SURVEY DATA

COUNTRY <b>USA</b>	TYPE OF MARK <b>BRASS CAP</b>	STATION <b>ZL6</b>		
LOCALITY <b>HAWTHORNE NEV.</b>	STAMPING ON MARK <b>ZL6 J-14</b>	AGENCY (CAST IN MARKS) <b>COE HWAAP</b>	ELEVATION <b>4129.25</b> (M)	(M)
LATITUDE <b>38°34'01.65914" N</b>	LONGITUDE <b>118°37'14.93468" W</b>	DATUM <b>NAD '27</b>	DATUM <b>NGVD '29</b>	
(NORTHING)(EASTING) (M) <b>1389564.17</b>	(EASTING)(NORTHING) (M) <b>489283.60</b>	GRID AND ZONE <b>NEVADA SP WEST</b>	ESTABLISHED BY (AGENCY) <b>A.L.S.</b>	
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE (M)	DATE <b>1997</b>	ORDER <b>2ND</b>

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETIC AZIMUTH
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH

# MONUMENT 26 - SWMU J-14

FROM HIGHWAY 95 TAKE THORNE ROAD NORTHEAST 3 MILES TO SALVAGE ROAD, THEN GO NORTHWEST 1600 FEET ON SALVAGE ROAD, THEN SOUTHWEST 1200 FEET TO A ROAD, THEN SOUTHEAST 900' TO A ROAD, THEN SOUTHWEST 2200 FEET TO BUILDING 103-17. SEE MAP BELOW. MONUMENT IS A 3 1/4" BRASS CAP SET IN A 1' X 1' CONCRETE PAD AND IS MARKED WITH A 4" X 4" X 6' WOOD POST, PAINTED WHITE.



DA FORM 1959

REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION  
For use of this form, see TM 5-237; the proponent agency is TRADOC.

SWMU J14 Survey Data  
Hawthorne Army Depot  
Hawthorne, Nevada

SWMU	Point ID	Northing (feet)	Easting (feet)	Elevation
J14	HWAAP-26-1996	1389564.16	489283.61	4129.25
J14	Pin 1	1389489.25	490035.08	NE
J14	Pin 2	1389245.71	489251.54	NE
J14	SB01	1389391.53	489895.96	NE
J14	SB02	1389478.38	489430.27	NE
J14	SB03	1389478.05	489345.05	NE
J14	SB04	1389467.43	489526.05	NE
J14	SB05	1389422.90	489717.29	NE
J14	SB06	1389188.52	489906.83	NE
J14	SB07	1389217.37	489883.90	NE
J14	SB08	1389247.93	489860.12	NE
J14	SB09	1389296.30	489821.90	NE
J14	SB10	1389319.21	489803.21	NE
J14	SB11	1389348.07	489780.28	NE
J14	SB12	1389378.11	489755.64	NE
J14	SB13	1389383.14	489705.52	NE
J14	SB14	1389387.65	489654.80	NE
J14	SB15	1389392.38	489604.08	NE
J14	SB16	1389395.50	489553.36	NE
J14	SD01	1389283.39	489829.04	NE
J14	SS01	1389326.56	489855.07	NE
J14	SS02	1389332.01	489887.35	NE

Notes:

NE = Not established.

Coordinate data based on electronic map file using the NAD 1927 datum.

Elevation data based on surveyors map using NGVD 1929 datum.

## TABLE

**Table 4-1**  
**Summary of Detected Analytical Results for Sediment and Soil Samples**  
**SWMU J14 - Building 103-6 Trench**

Sample ID	J14-SD01-1-S	J14-SD01-1-S*	J14-DP030	J14-DP033	J14-SS01-1-S	J14-SS02-1-S	J14-SS03-1-S	J14-SB02-1-S	J14-SB03-1-S	J14-SB03-2-S
Location ID	SD01	SD01	SD01	SD01	SS01	SS02	SS03	SB02	SB03	SB03
Sample Date	7/10/94	7/10/94	7/10/94	7/10/94	7/10/94	7/10/94	7/10/94	8/18/94	8/18/94	8/18/94
Sample Depth (feet)	0	0	0	0	0	0	0	15.25	7.25	16
<b>Metals (mg/kg)</b>										
<b>Methods 6000s/7000s</b>										
Arsenic	24 <sup>J</sup>	NA	27 <sup>I</sup>	NA	<4	<5	<5	4.1 <sup>J</sup>	4.9 <sup>I</sup>	<4
Barium	210	NA	230	NA	100	85	100	120	640	93
Cadmium	660	NA	960	NA	1.1	<0.2	<0.2	<0.2	0.47 <sup>I</sup>	0.2
Chromium, total	28	NA	32	NA	3.3 <sup>I</sup>	3.1 <sup>J</sup>	4.7 <sup>I</sup>	4.5 <sup>J</sup>	5.7	4.2 <sup>J</sup>
Lead	820	NA	690	NA	9 <sup>I</sup>	6.5 <sup>J</sup>	84	7.2 <sup>I</sup>	10 <sup>J</sup>	9.7 <sup>I</sup>
Mercury	2.1	NA	1.6	NA	<0.04	<0.06	1.5	<0.04	<0.04	<0.04
<b>Explosives (mg/kg)</b>										
<b>Method 8090M/8330</b>										
TNB	81 <sup>J</sup>	0.31	NA	NA	NA	<1 <sup>UJ</sup>	<350 <sup>UJ</sup>	<0.5 <sup>UJ</sup>	<0.5 <sup>UJ</sup>	<0.5 <sup>UJ</sup>
TNT	<5	4	NA	NA	NA	<0.5	<350 <sup>UJ</sup>	<0.25	<0.25	<0.25
HMX	1.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Volatile Organics (mg/kg)</b>										
<b>Method 8260</b>										
Methylene chloride	0.01	NA	NA	0.019 <sup>J</sup>	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	0.0033	NA	NA	0.0029 <sup>J</sup>	NA	NA	NA	NA	NA	NA
<b>Semivolatile Organics (mg/kg)</b>										
<b>Method 8270</b>										
Dibutylphthalate	NA	NA	NA	NA	<0.1	<1000	2.2 <sup>U</sup>	<0.1	<0.1	<0.1
Pyrene	NA	NA	NA	NA	<0.1	17 <sup>J</sup>	<0.1	<0.1	<0.1	<0.1
<b>RDX Test Kit (mg/kg)</b>										
<b>Method 8510</b>										
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**Table 4-1**  
**Summary of Detected Analytical Results for Sediment and Soil Samples**  
**SWMU J14 - Building 103-6 Trench (continued)**

Sample ID	J14-SB05-1-S	J14-SB05-2-S	J14-SB05-3-S	J14-SB06-1-S	J14-SB07-1-S	J14-SB08-1-S	J14-SB09-1-S	J14-SB17-1-S	J14-SB10-1-S	J14-SB11-1-S
Location ID	SB05	SB05	SB05	SB06	SB07	SB08	SB09	SB09	SB10	SB11
Sample Date	8/18/94	8/18/94	8/18/94	2/16/97	2/16/97	2/16/97	2/16/97	2/16/97	2/16/97	2/16/97
Sample Depth (feet)	7	12.25	26.5	5	6	6	5	5.25	6	5
<b>Metals (mg/kg)</b>										
<b>Methods 6000s/7000s</b>										
Arsenic	4.9 J	<4	<4	NA	NA	NA	NA	NA	NA	NA
Barium	130	82	74	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.33 J	<0.2	<0.2	<0.022	<0.022	<0.02	<0.021	<0.021	<0.021	<0.02
Chromium, total	6.1	5.1	7.3	NA	NA	NA	NA	NA	NA	NA
Lead	5.6 J	8.4 J	12 J	12.5	7.9	3.5	7.4	6.9	7.4	4.7
Mercury	<0.04	<0.04	<0.04	NA	NA	NA	NA	NA	NA	NA
<b>Explosives (mg/kg)</b>										
<b>Method 8090M/8330</b>										
TNB	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.015	<0.014	<0.013	<0.013	<0.013	<0.014	<0.013
TNT	<0.25	<0.25	<0.25	<0.045	<0.044	<0.041	<0.042	<0.042	<0.042	<0.041
HMX	NA	NA	NA	<0.051	<0.05	<0.047	<0.048	<0.048	<0.048	<0.047
<b>Volatile Organics (mg/kg)</b>										
<b>Method 8260</b>										
Methylene chloride	NA	NA	NA	<0.0008	<0.0008	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Semivolatile Organics (mg/kg)</b>										
<b>Method 8270</b>										
Dibutylphthalate	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA
Pyrene	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA
<b>RDX Test Kit (mg/kg)</b>										
<b>Method 8510</b>										
RDX	NA	NA	NA	<0.8	0.91	<0.8	<0.8	<0.8	0.91	<0.8

**Table 4-1**  
**Summary of Detected Analytical Results for Sediment and Soil Samples**  
**SWMU J14 - Building 103-6 Trench (continued)**

Sample ID		J14-SB12-1-S	J14-SB13-1-S	J14-SB14-1-S	J14-SB15-1-S	J14-SB16-1-S	Analyses				
Location ID		SB12	SB13	SB14	SB15	SB16	Detections	Minimum	Maximum	PCG	Hiis
Sample Date		2/16/97	2/16/97	2/16/97	2/16/97	2/16/97					
Sample Depth (feet)		6	5.5	6	8	5					
<b>Metals (mg/kg)</b>											
<b>Methods 6000s/7000s</b>											
Arsenic		NA	NA	NA	NA	NA	12	6	4.1	27	100
Barium		NA	NA	NA	NA	NA	12	12	74	640	2000
Cadmium		<0.021	<0.021	<0.021	<0.021	<0.021	24	6	0.2	960	20
Chromium, total		NA	NA	NA	NA	NA	12	12	3.1	32	20
Lead		9.2	5.8	8.7	13.8	6.6	24	24	3.5	820	100
Mercury		NA	NA	NA	NA	NA	12	3	1.5	2.1	24
<b>Explosives (mg/kg)</b>											
<b>Method 8090M/8330</b>											
TNB		<0.014	<0.013	<0.014	<0.013	<0.014	29	2	0.31	81	4
TNT		<0.042	<0.041	<0.042	<0.041	<0.042	29	1	4	4	233
HMX		<0.048	<0.047	<0.049	<0.048	<0.048	14	1	1.1	1.1	4000
<b>Volatile Organics (mg/kg)</b>											
<b>Method 8260</b>											
Methylene chloride		<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	14	2	0.01	0.019	4800
Trichlorofluoromethane		NA	NA	NA	NA	NA	14	2	0.0029	0.0033	24000
<b>Semivolatile Organics (mg/kg)</b>											
<b>Method 8270</b>											
Dibutylphthalate		NA	NA	NA	NA	NA	10	1	2.2	2.2	8000
Pyrene		NA	NA	NA	NA	NA	10	1	17	17	2400
<b>RDX Test Kit (mg/kg)</b>											
<b>Method 8510</b>											
RDX		< 0.8	1.54	28	3.11	24.9	12	6	0.91	28	64

**Notes:**

mg/kg = milligrams per kilogram.

NA = Not analyzed.

NE = Not established

Qualifiers are defined in Appendix E.

J14-SD01-1-S\* is the split duplicate confirmation explosives analysis of sample J14-SD01-1-S

J14-DP030 and J14-DP033 are split duplicate samples of J14-SD01-1-S.

J14-SS01-1-RS is a resample of J14-SS01-1-S.

J14-SB17-1-S is a collocation duplicate sample of J14-SB09-1-S.